Material Safety Data Sheet

Nonflammable Gas Mixture: Carbon Monoxide 25ppm-12.49% / Nitrogen 68-99% / Oxygen 1-19.5%

Section 1. Chemical product and company identification

Product Name : Nonflammable Gas Mixture: Carbon Monoxide 25ppm-12.49% / Nitrogen 68-99% / Oxygen 1-19.5%

Supplier : AIRGAS INC., on behalf of its subsidiaries
259 North Radnor-Chester Road
Suite 100
Radnor, PA 19087-5283
1-610-687-5253

Product use : Synthetic/Analytical chemistry.

MSDS# : 002108

Date of Preparation/Revision : **10/11/2006.**

In case of emergency : 1-866-734-3438

Section 2. Hazards identification

Physical state : Gas.

Emergency overview : Warning!

CONTENTS UNDER PRESSURE.
HARMFUL IF INHALED.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: BLOOD, LUNGS, CARDIOVASCULAR SYSTEM, CENTRAL NERVOUS SYSTEM.

Avoid breathing gas. Do not puncture or incinerate container. Keep container closed. Use only with adequate ventilation.

Contact with rapidly expanding gases can cause frostbite.

Routes of entry : Inhalation

Potential acute health effects

Eyes : No known significant effects or critical hazards.

Skin : No known significant effects or critical hazards.

Inhalation : Toxic by inhalation.

Ingestion : Ingestion is not a normal route of exposure for gases

Potential chronic health effects : **CARCINOGENIC EFFECTS** Not available.
MUTAGENIC EFFECTS Not available.
TERATOGENIC EFFECTS: Not available.

Medical conditions aggravated by overexposure : Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

See toxicological Information (section 11)

Section 3. Composition, Information on Ingredients

Name	CAS number	% Volume	Exposure limits
Nitrogen	7727-37-9	68 - 99	
Oxygen	7782-44-7	1 - 19.5	
Carbon Monoxide	630-08-0	0.0025 - 12.49	**ACGIH TLV (United States, 1/2005). Notes: Substances for which there is a Biological Exposure Index or Indices** TWA: 29 mg/m^3 8 hour(s). Form: All forms TWA: 25 ppm 8 hour(s). Form: All forms **NIOSH REL (United States, 12/2001).** CEIL: 229 mg/m^3 Form: All forms CEIL: 200 ppm Form: All forms TWA: 40 mg/m^3 10 hour(s). Form: All forms TWA: 35 ppm 10 hour(s). Form: All forms **OSHA PEL (United States, 8/1997).**

TWA: 55 mg/m^3 8 hour(s). Form: All forms
TWA: 50 ppm 8 hour(s). Form: All forms

Section 4. First aid measures

No action shall be taken involving any personal risk or without suitable training.If fumes are still suspected to be present, the rescuer should wear an appropriate mask or a self-contained breathing apparatus.It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

Eye contact : In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Get medical attention if irritation occurs.

Skin contact : In case of contact, immediately flush skin with plenty of water. Remove contaminated clothing and shoes. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

Frostbite : Try to warm up the frozen tissues and seek medical attention.

Inhalation : If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

Ingestion : Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention if symptoms appear.

Section 5. Fire fighting measures

Flammability of the product : Non-flammable.

Auto-ignition temperature : The lowest known value is 608.89°C (1128°F) (Carbon monoxide).

Products of combustion : These products are carbon oxides (CO, CO_2), nitrogen oxides (NO, NO_2...).

Fire fighting media and instructions : Use an extinguishing agent suitable for surrounding fires.

If involved in fire, shut off flow immediately if it can be done without risk. Apply water from a safe distance to cool container and protect surrounding area.

No specific hazard.

Special protective equipment for fire-fighters : Fire fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full facepiece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions : Immediately contact emergency personnel. Keep unnecessary personnel away. Use suitable protective equipment (Section 8). Shut off gas supply if this can be done safely. Isolate area until gas has dispersed.

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Section 7. Handling and storage

Handling : Keep container closed. Use only with adequate ventilation. Do not puncture or incinerate container. High pressure gas. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.

Storage : Keep container tightly closed. Keep container in a cool, well-ventilated area. Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F).

Section 8. Exposure Controls, Personal Protection

Engineering controls : Use only with adequate ventilation. If user operations generate dust, fumes, vapor or mist, use process enclosures, local exhaust ventilation, or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Personal protection

Eyes : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.

Skin : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary.Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

The applicable standards are (US) 29 CFR 1910.134 and (Canada) Z94.4-93

Hands : Chemical-resistant, impervious gloves or gauntlets complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.

Personal protection in case of a large spill : A self-contained breathing apparatus should be used to avoid inhalation of the product.

Consult local authorities for acceptable exposure limits.

Section 9. Physical and chemical properties

Molecular weight : Not applicable.

Molecular formula : Not applicable.

Boiling/condensation point : Not available.

Melting/freezing point : -198.88°C (-326°F) based on data for: Carbon monoxide. Weighted average: -210.2°C (-346.4°F)

Critical temperature : The lowest known value is -146.9°C (-232.4°F) (Nitrogen).

Vapor density : The highest known value is 1.105 (Air = 1) (Oxygen). Weighted average: 0.99 (Air = 1)

Specific Volume (ft^3/lb) : Not applicable.

Gas Density (lb/ft^3) : Weighted average: 0.07

Section 10. Stability and reactivity

Stability and reactivity : The product is stable.

Incompatibility with various substances : Not considered to be reactive according to our database.

Section 11. Toxicological information

Ingredient name	Test	Result	Route	Species
Carbon Monoxide	LC50	3760 ppm (1 hour(s))	Inhalation	Rat
	LC50	2444 ppm (4 hour(s))	Inhalation	Mouse

Chronic effects on humans : Contains material which causes damage to the following organs: blood, lungs, cardiovascular system, central nervous system (CNS).

Other toxic effects on humans : No specific information is available in our database regarding the other toxic effects of this material for humans.

Specific effects

Carcinogenic effects : No known significant effects or critical hazards.

Mutagenic effects : No known significant effects or critical hazards.

Reproduction toxicity : No known significant effects or critical hazards.

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Section 12. Ecological information

Products of degradation : These products are carbon oxides (CO, CO_2), nitrogen oxides (NO, NO_2...).

Toxicity of the products of biodegradation : The products of degradation are less toxic than the product itself.

Environmental fate : Not available.

Environmental hazards : No known significant effects or critical hazards.

Toxicity to the environment : Not available.

Section 13. Disposal considerations

Product removed from the cylinder must be disposed of in accordance with appropriate Federal, State, local regulation.Return cylinders with residual product to Airgas, Inc.Do not dispose of locally.

Section 14. Transport information

Regulatory information	UN number	Proper shipping name	Class	Packing group	Label	Additional information
DOT Classification	UN1956	COMPRESSED GAS, N.O.S.	2.2	Not applicable (gas).		-
TDG Classification	UN1956	COMPRESSED GAS, N.O.S.	2.2	Not applicable (gas).		**Explosive Limit and Limited Quantity Index** 0.125 **Passenger Carrying Road or Rail Index** 75
Mexico Classification	UN1956	COMPRESSED GAS, N.O.S.	2.2	Not applicable (gas).		-

Section 15. Regulatory information

United States

U.S. Federal regulations : TSCA 8(b) inventory: Nitrogen; Oxygen; Carbon monoxide

SARA 302/304/311/312 extremely hazardous substances: No products were found.
SARA 302/304 emergency planning and notification: No products were found.
SARA 302/304/311/312 hazardous chemicals: Nitrogen; Oxygen; Carbon monoxide
SARA 311/312 MSDS distribution - chemical inventory - hazard identification: Nitrogen: Sudden Release of Pressure; Oxygen: Fire hazard, Sudden Release of Pressure, Delayed (Chronic) Health Hazard; Carbon monoxide: Fire hazard, Sudden Release of Pressure, Immediate (Acute) Health Hazard, Delayed (Chronic) Health Hazard

Clean Water Act (CWA) 307: No products were found.

Clean Water Act (CWA) 311: No products were found.

Clean air act (CAA) 112 accidental release prevention: No products were found.

Clean air act (CAA) 112 regulated flammable substances: No products were found.

Clean air act (CAA) 112 regulated toxic substances: No products were found.

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State regulations : Pennsylvania RTK: Nitrogen: (generic environmental hazard); Oxygen: (generic environmental hazard); Carbon monoxide: (environmental hazard, generic environmental hazard)
Massachusetts RTK: Nitrogen; Oxygen; Carbon monoxide
New Jersey: Nitrogen; Oxygen; Carbon monoxide

California prop. 65 : **WARNING:** This product contains a chemical known to the State of California to cause birth defects or other reproductive harm.

Ingredient name	Cancer	Reproductive	No significant risk level	Maximum acceptable dosage level
Carbon Monoxide	No.	Yes.	No.	No.

Canada

WHMIS (Canada) : Class A: Compressed gas.
Class D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
Class D-2A: Material causing other toxic effects (VERY TOXIC).
CEPA DSL: Nitrogen; Oxygen; Carbon monoxide

Section 16. Other information

United States

Label Requirements : CONTENTS UNDER PRESSURE.
HARMFUL IF INHALED.
CONTAINS MATERIAL WHICH CAUSES DAMAGE TO THE FOLLOWING ORGANS: BLOOD, LUNGS, CARDIOVASCULAR SYSTEM, CENTRAL NERVOUS SYSTEM.

Canada

Label Requirements : Class A: Compressed gas.
Class D-1A: Material causing immediate and serious toxic effects (VERY TOXIC).
Class D-2A: Material causing other toxic effects (VERY TOXIC).

Hazardous Material Information System (U.S.A.) :

Health	*	2
Fire hazard		0
Reactivity		0
Personal protection		C

National Fire Protection Association (U.S.A.) :

Notice to reader

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